

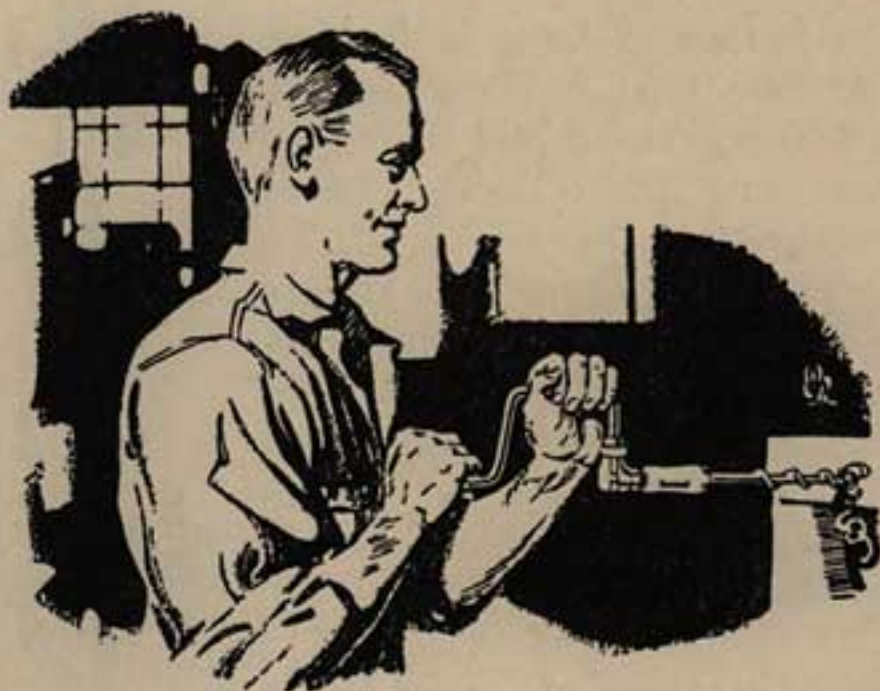


# HOW

**to Select  
Use and  
Care for  
BITS**







## How to Select, Use and Care for Bits

### *Reason for Booklet*

IF YOU will notice the bits that you see in work shops, tool chests and home or farm tool kits, you will discover that more information about bits would be very useful.

In many collections of tools you see bits that are practically useless, either because they have been unwisely selected, improperly used or not kept in condition. For these reasons, information on the selection, use and care of bits will be of practical advantage even to the person

who uses bits only occasionally.

The boring of holes is such an old process that it is natural to take it for granted and to remain content with the common run of knowledge on the subject. To many people an auger bit is simply a tool that bores a hole in wood. To them one hole looks just like another. It is simply a round cavity in a piece of wood. Also, all bits present a similar general appearance to them.

### *What to Expect of a Bit*

Some users of bits are satisfied with a poor tool because they do not yet know that better ones exist. Their standard of wood-boring requirements is not very high. The modern price of lumber makes a poorly constructed bit an expensive tool because it may ruin a piece of wood that costs more than the price of a good bit.

A bit should carry itself into the wood, cut a clean hole, finish the hole neatly on the far side, and turn easily without pressure on the brace. The parts of a bit are the shank, the twist and the head.



*The parts  
of a bit*

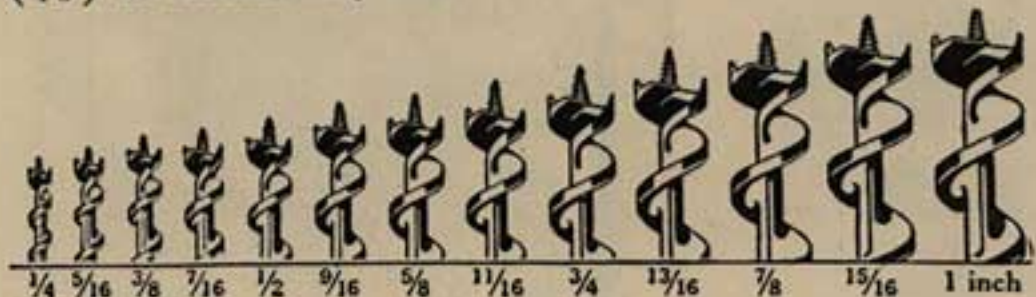


## How to Select a Bit

It is taken for granted that you want a general purpose bit, one that will bore in all kinds of wood in general use. There are bits made for special purposes, such as Electrician Bits or Sugartree Bits. If you are working in some particular trade or boring one kind of wood all of the time, it is well to ask for a bit specially adapted to that purpose. However, unless you have some specific work in mind you will want a general purpose bit.

### Size

Be sure to know the exact size that you want. The sizes of the bits are graded by one-sixteenth of an inch. A number nine (9) bit is nine-sixteenths ( $\frac{9}{16}$ ) in diameter, etc.



## The Screw

In looking over a bit begin with the screw point. It is the part that touches the wood first. The screw supplies the pulling power for the bit. The depth of the hole cut by each revolution of the bit depends upon the pitch of the threads of the screw. In other words, the pitch of the screw threads determines the feed of the bit.

For general work do not choose a screw with threads having either a steep pitch for heavy feed or a slow pitch for light feed. The very steep pitch makes the chip thicker and consequently harder to turn. The very slow pitch makes a thin chip and runs easily, but is tedious. Practical tests have determined the proper pitch for the threads of each size of general purpose bits.

A screw should have ample metal in the center for strength and the threads should have the shape and depth that gives the most pulling power. It is important that the threads should merge with the cutting edges.



*Fast  
Screw*



*Medium  
Screw*



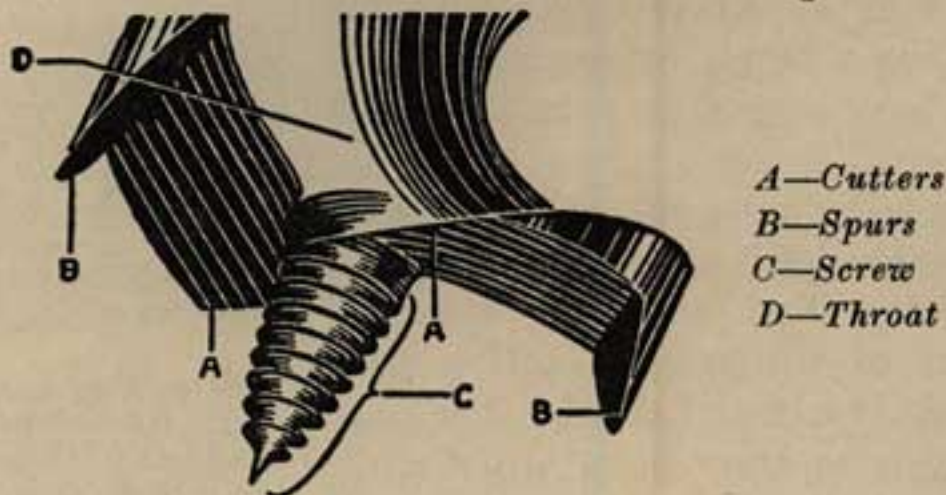
*Slow  
Screw*

## *The Spurs*

The spurs touch the wood immediately after the screw. The function of the spur is to score the outer edge of the chip in advance of the cutter. A spur that is too short will not entirely cut the edge of the chip and does not complete its work in advance of the cutter. An ideal spur is one whose length is suited to the feed of the bit, with sufficient metal for strength brought to a cutting edge, but without unnecessary thickness which wedges and drags.

## *The Cutting Lips*

The third parts to consider in selecting a bit are the cutting lips. These follow the spurs and cut the chips, starting them on their outward journey. It is important that the edges of the two opposite cutters be on the same level, that sufficient metal is provided for wear, beveled to the proper angle and brought to a cutting edge. If one of them is only slightly higher or lower than the other it will result in one doing more than half of the work and the other less than half. The chips as they



leave the cutters flow through the throat of the bit.

### *The Clearance*

In selecting a bit choose one with plenty of room in the throat for the chips to leave the cutting lips. The twist receives the chips from the throat and conveys them to the mouth of the hole. Ample room in the twist keeps the chips moving freely. The outside of the twist of a bit should be ground so that the diameter of the twist is slightly less than the diameter of the head, in order to permit the twist to follow the head into the hole without friction.

### *The Shank*

The shank is the part of the bit that fits into the chuck of the brace. It has four tapered sides. All four sides must have exactly the same bevel, otherwise the bit will have a tendency to swing off center.

In selecting a bit we began with the screw. We noted its important function and also the essential point of the spurs, cutting lips, throat, twist and shank. The next thing is to know how to use a bit.



*The screw supplies the pulling power for the bit*



*The spur scores the outer edge of the chip in advance of the cutter*



*The cutting lips cut the chips and start them on their outward journey*



## How to Use a Bit



*The hang of a bit comes from the whole bit being balanced around a central line*

### *The Hang*

SOME carpenters have in their tool chest an old bit that they would not part with for a great deal of money. They have a favorite bit just as they have a favorite saw or favorite hammer. Years of use have proved that this certain bit has the right "hang." This "hang" comes from the whole bit being balanced around a central line. When this bit is fitted into the jaws of a brace the boring head has no tendency to swing off center. The bit is built to deliver all of its power in a straight line that runs through the tip of the screw. Also the head, the screw and the cutting parts are correctly built to work in unison.

In placing a bit in a brace be careful to get it in alignment. Some bits will always have a tendency to swing off center because they are not correctly built.

### *The Bit Head In Operation*

When a bit is in operation its different parts are performing their function not one at a time,

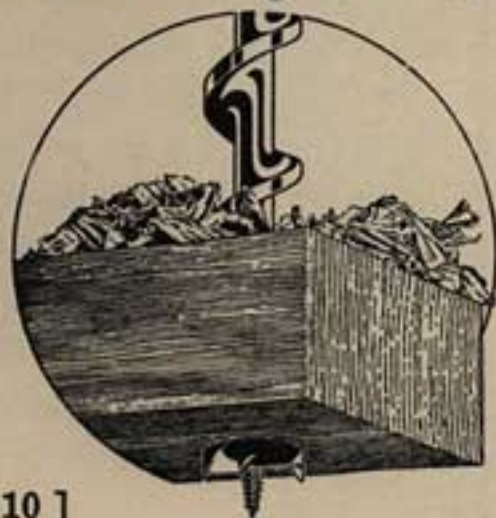
but in unison. The work of one part is preparatory to the work of another and they must be timed together just as a motor is timed. A poorly constructed part or a part out of time throws an extra burden on the others. This makes the boring harder and the results of the effort unsatisfactory.

### *Watching the Chips*

The feel of the brace and the effort required to turn it will indicate whether the parts of a bit are working together. If the chips are uniform in thickness it shows that the two cutting lips are in the right relation to each other. If both thick and thin chips come from the hole it shows that the cutters are not sharing their work equally. Also, if the edges of the chips are rough it shows the spurs are not doing their part. If the screw fills with fibre and releases, it shows that the threads are not smooth and are not properly joined with the cutting lips.

A wood-boring tool is not adapted for use in metal. On the other hand, a tool intended for metal is not well adapted for boring in wood.

*A well designed auger bit goes accurately and easily into the wood, finishes off the hole neatly on the other side, and carries off the chips without clogging*



# How to Care for a Bit

## *Filing*

IN REGARD to the filing of bits, in general they get more filing than is necessary. Some users even go so far as to file a new bit before they have used it. On account of the close relation of the parts of the boring head to each other and on account of their small size, it is not possible to file away much metal from the head of the bit without reducing its boring quality. Look at the bit carefully before you begin to file it.

## *Resharpening a Spur*

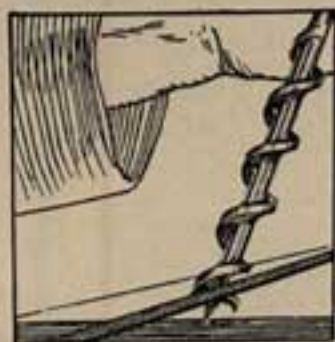
Rest the bit on a board with the screw pointing up. Draw the file lightly on the inside of the spur. Never file a spur on the outside because that will destroy some of the clearance of the bit and very definitely impair its usefulness.

## *Resharpening a Cutter*

Rest the bit on a board with the screw down. File the cutters on the upper edge only. If you take material from one cutter, take the same amount from the other one. It is essential that both cut-



*Resharpening the spur*



*Resharpening the cutter*

ters be on the same level so that they will cut chips of equal thickness.

### *Re-straightening the Twist*

If through some abuse, such as heavy timber falling on a bit, it becomes sprung, it can often be straightened. Roll it on a level wood surface until the bend is located. Then tap it on the high side with light blows of a hammer.

### *Preventing Rust*

Moisture from the hand or sap from green timber may occasionally cause rust spots. If bits are wiped off now and then with an oily rag, this will be prevented.

### *Have a Place For Bits*

One of the most practical features in the care of bits is a place to keep them. When bits are kept loose in a tool box or in a drawer their length of life is shortened. The tool that you want is always at the bottom and in searching for it you turn over all the tools throwing some of the heavier pieces on top of the small bits. Finally you shut the drawer or slam the lid and jam the cutting edges against other pieces of steel.



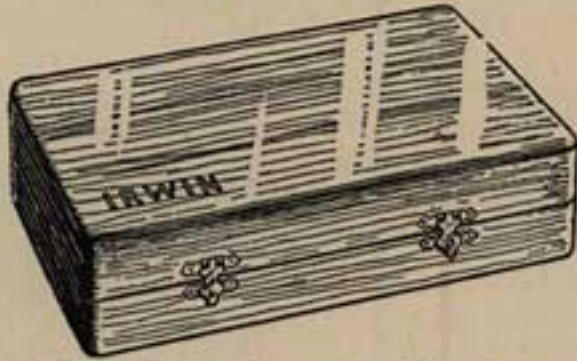
*Re-straightening  
the twist*



*Oiling to prevent  
rust*

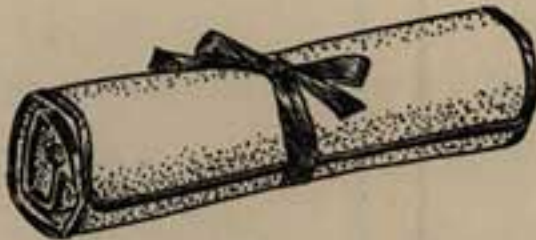
## Two Kinds of Containers

### *The Borchest*



THE IRWIN Borchest is the ideal way to keep auger bits free from damage and loss. The Borchest is made from high grade lumber, beautifully finished in lacquer. The bits are held in place by spring steel clips, making them instantly available at all times. See pages 15, 16, 17, 18 and 19 for Irwin Sets available in Borchests.

### *The Borkit*



THE IRWIN Borkit is the popular package most preferred by workmen who carry tools on the job. It is a convenient way to carry a set of auger bits because it can be rolled into a small package. Made from a good grade of leatherette and lined with flannel. Individual pockets for every bit. When rolled, it is fastened by the strings. See pages 15, 16, 17, 18 and 19 for Irwin Borkit Sets.

## *New Wrapping of Irwin Bits and Guard for Cutting Head Gives Customer Protection*

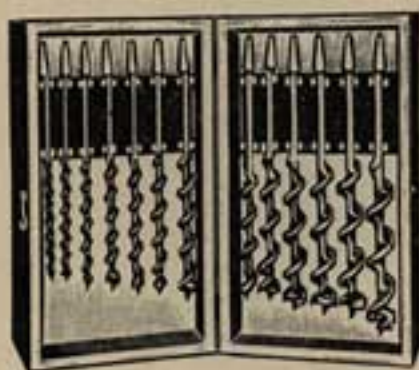


All Irwin and Bluwin Hi-Lite finish auger bits are now wrapped in moisture-proof Cellophane and have protective cutting head features that guard the cutting lips, spurs and screw point against damage after they leave the factory.

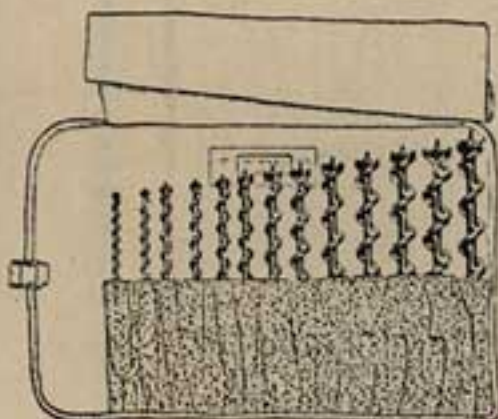
The moisture-proof Cellophane wrapping insures protection against rust and marring of the finish while in your dealer's stock. This extra feature, together with the protective cutting head guard, insures the user of Irwin auger bits, factory-new tools at all times. Only Irwin gives you this protection.

# Carpenter Set

## *Containing 13 Bits*



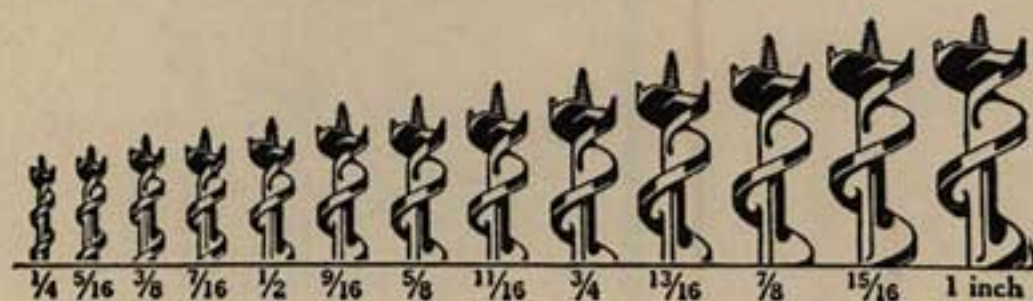
*Borchest*



*Borkit*

THIS is the assortment that meets the requirements of daily tool users. The following sizes are included in the set: one each of 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16-16ths. Thirteen bits in all—a size for most any wood boring job.

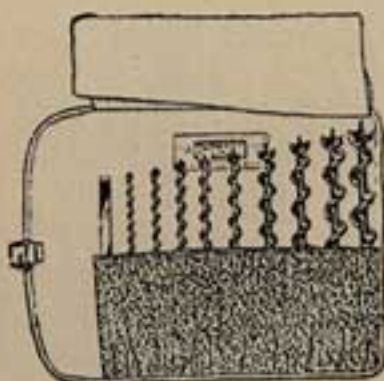
The Carpenter Set can be furnished in Irwin, Bluwin and Clinton Grades in both Borchest and Borkit.



## Handy Set Containing 10 Bits



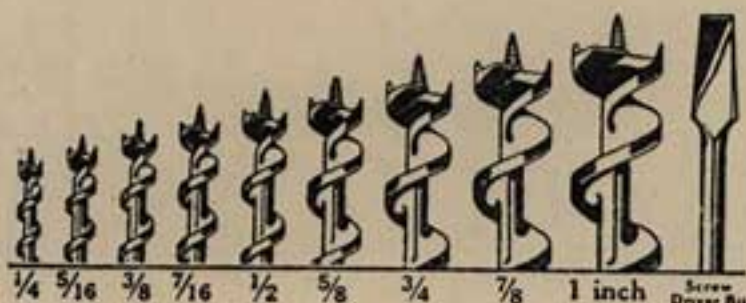
*Borchest*



*Borkit*

MEETS the requirements of the handy man who uses bits quite often in doing odd jobs of carpentry about the home. Sizes of bits in the Handy Set are as follows: Ten bits, one each of 4, 5, 6, 7, 8, 10, 12, 14 and 16-16ths and 1 screw driver bit.

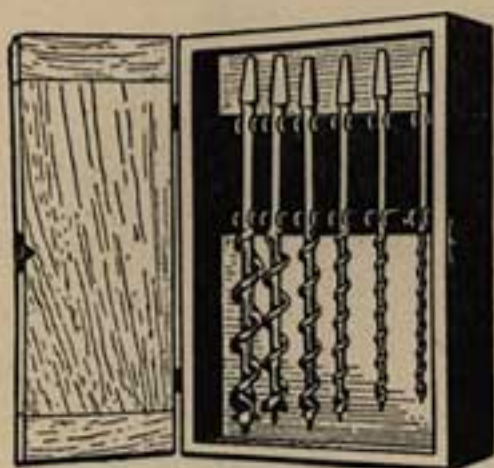
The Handy Set can be furnished in Irwin, Bluwin, and Clinton Grades in both Borchest and Borkit.



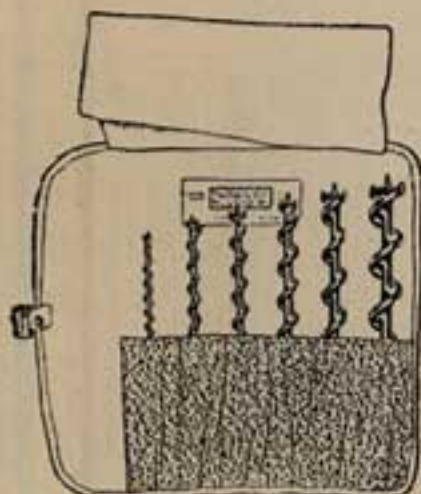


# Home Set

## Containing 6 Bits



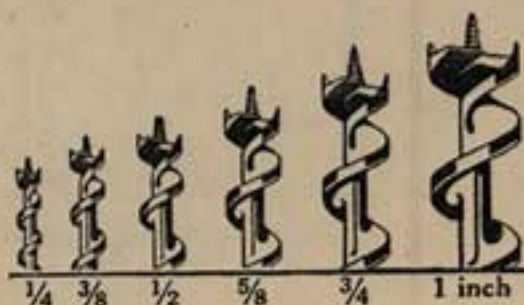
*Borchest*



*Borkit*

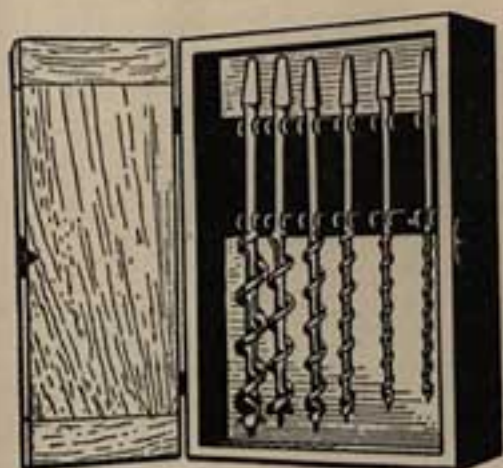
THIS assortment meets all general requirements around the home. Only the sizes found by experience to fill ordinary every day repair jobs are included. There are 6 bits in all, one each of 4, 6, 8, 10, 12 and 16-16ths.

Home Sets can be furnished in Irwin, Bluwin, and Clinton Grades in Borchest and Borkit.

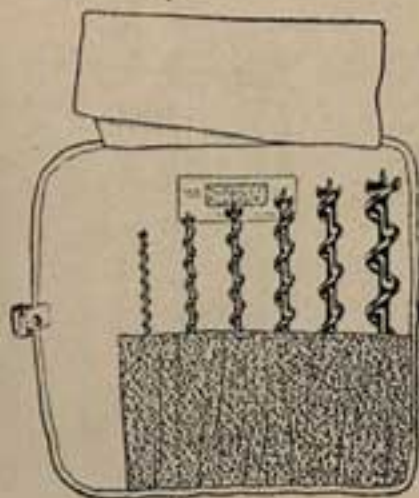


# Little Six Set

Containing 6 Bits

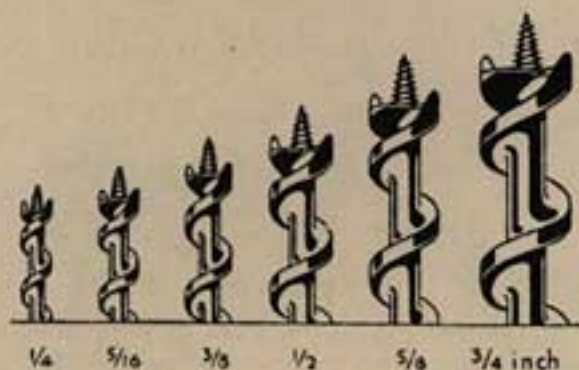


*Borchest*



*Borkit*

A COMPACT assortment of six popular size bits for general work around the home or shop. The bits included in this Little Six Set are as follows: Six bits, one each of 4, 5, 6, 8, 10 and 12-16ths. Little Six Sets can be furnished in Irwin, Bluwin and Clinton grades in Borchest and Borkit.





## Special Bits for Special Jobs

MANY wood boring needs are special and peculiar. Frequently, much of the work must be done in wood of one kind. Again, the volume may be unusually large, making it advisable to devote special care to bit selection, with a view toward maximum speed and efficiency. In some instances, bits of special design are needed.

Manual training instructors find it helpful to include detailed information on bit operation in their lecture work, and at some time during the school year to conduct a series of tests to demonstrate the importance of intelligent bit selection.

Accurate information on the theory of bit operation is helpful in many ways, and in cases where a large amount of work is to be done, proper bit selection is a vital production aid.

Our long and diversified experience in the manufacture of wood boring tools qualifies us to advise in special problems. This service is **FREE**.

## Auger Bits

MANY people believe that auger bits are all alike. They usually think of the regular auger bit they see around the home as the only type used. There are many different kinds of boring heads and bits—each one designed to do a specific job. Following are a few examples:

### *Mainbor Auger Bit Stock No. 62-T*



This bit is recommended for general carpentry where one boring tool must meet all requirements. Most holes bored in wood the world over are the work of the IRWIN Mainbor Auger Bit. Naturally this bit is confronted with many different jobs. Therefore, it is designed and built as an all around general purpose bit.

The length over-all is 7 inches on the smaller sizes to 9 inches on the larger sizes. The length of twist runs from 4 inches on the smaller sizes to 5 inches on the larger.

Irwin Auger Bits are made in four grades, Irwin, Bluwin and Clinton, in sizes from 3/16 to 32/16ths inclusive. Only Irwin and Bluwin are Cellophane wrapped with protected cutting head.

### *Carbor Auger Bit Stock No. 52-T*



This bit is recommended for use in repair work, where obstructions may be encountered. This bit is more adapted for heavy work than fine work.

### *Surebor Auger Bit Stock No. 32-T*



This bit is recommended for rapid boring in rough woods and for general use.

The list prices per dozen are the same for the different kinds of auger bits shown herewith. In length over-all these bits run from seven inches on the smaller sizes to nine inches on the larger sizes. The twist runs from four inches on the smaller sizes to five inches on the larger sizes.

### *Endbor Auger Bit Stock No. 72-T*



This bit is recommended for use in hard woods and for boring in the end of timbers. It is especially adapted for Tropical hard woods.



## Electrician Bits

SUREBOR and Speedbor are two bits very much in demand among the electricians and linesmen and because of the similarity of the work they are also widely used by plumbers. For running lines, conduits, cables and boring holes for pipes a fast cutting bit is required because this is rough, hard work and because plaster and other obstructions are frequently met and a tough bit is necessary. Because such workers are frequently required to bore from cramped positions where a ratchet brace is needed, these men require a fast cutting bit such as Speedbor and Surebor.

### *Speedbor Electrician Bit No. 3-E*



This bit is ten inches over-all with a six inch twist. It is long enough to reach through partitions and tough enough to stand the grief.

Made in Irwin and Bluwin grades, in 10-16, 10 $\frac{1}{2}$ -16, 11-16 and 12-16" sizes.

### *Surebor Electrician Bit Stock No. 32-T*



The length over-all is 8 $\frac{1}{2}$  inches and the length of twist is 4 $\frac{1}{2}$  inches. The Surebor electrician bit is similar to Speedbor except that it is 1 $\frac{1}{2}$  inches shorter.

Made in Irwin and Bluwin grades in sizes from 3-16" to 24-16" inclusive.

### *Short Electrician Bit Stock No. 31-T*

This bit is 6 inches over-all with a 4-inch twist. Used by electricians when working in close quarters. Made in the standard 11-16" size only.

## Short Auger Bits

### *Mainbor Dowel Bit Stock No. 61-T*



THIS BIT is recommended for boring short accurate holes such as dowel pin holes and for manual training work. The length over-all is  $4\frac{1}{2}$  inches and the length of twist is 3 inches.

Furnished in Irwin and Bluwin grades in sizes from 4-16 to 10-16 inclusive.

### *Tapbor Sugar Tree Bit Stock No. 91-T*



This bit is recommended for tapping sugar trees. The rounded head bores green sugar trees easily and leaves the bottom of the hole cup-shaped so that the wood heals quickly. The length over-all is 6 inches. The length of twist is  $3\frac{1}{2}$ ".

Made only in the Irwin grade in sizes 5-16 to 8-16 inclusive.

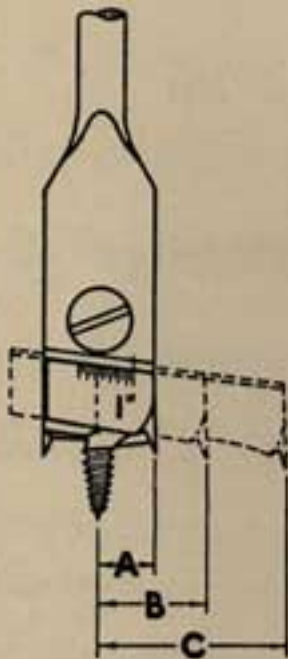


# Expansive Bits



IRWIN Expansive Bits are widely used because they positively eliminate loose plates. Blades are held in a solid clamping device which is part of the head, preventing slippage of blade, insuring accurate boring. Irwin Expansive Bits are the only bits of this type on the market with the solid one-piece construction. Made in large and small sizes in Irwin, Bluwin, Clinton and Union grades.

Small size cuts hole from  $\frac{5}{8}$ " to  $1\frac{1}{2}$ " and large size  $\frac{7}{8}$ " to 3". All expansive bits are packed with an extra cutter.



- A—Bores Hole  $\frac{7}{8}$ "
- B—Bores Hole  $1\frac{1}{2}$ "
- C—Bores Hole 3"

## *How an Expansive Bit Works*

At left we show a sketch of how a large size Irwin Expansive bit is adjusted to bore various size holes. The cutting blade is first adjusted to cut the proper size hole and then clamped securely in place. Further directions are enclosed with each bit that you purchase.

## Short Car Bits

### *Mainbor 12-inch Short Car Bit*

*Stock No. 63-T*



THIS BIT is recommended for smooth boring in the general kinds of woods.

Average length over-all 12". Average length of twist 8". Made in Irwin and Bluwin grades in sizes from 4-16 to 16-16 inclusive.

### *Carbor 12-inch Short Car Bit*

*Stock No. 53-T*



This bit is recommended for boring rough, heavy timber or for use in repair work where obstructions may be encountered.

The length of these bits is 12 inches over-all with a twist of 8 inches and a shank of 4 inches.

Furnished in the Irwin grade only and made in all sizes from 4-16 to 16-16 inclusive.

## Car Bits

HOLES are frequently required in timbers or posts which are too thick for the ordinary auger bit to bore through. For these purposes a car bit is used. It takes its name from its use in railroad work, but this is by no means the only purpose for which a bit of this length is required.

### *Mainbor 18-inch Car Bit Stock No. 65-T*



This is an easy running bit and can be used in the general range of woods.

### *Carbor 18-inch Car Bit Stock No. 55-T*



This is also known as the Ship Auger Car Bit. It is recommended for construction repair work, railroad shops, etc.

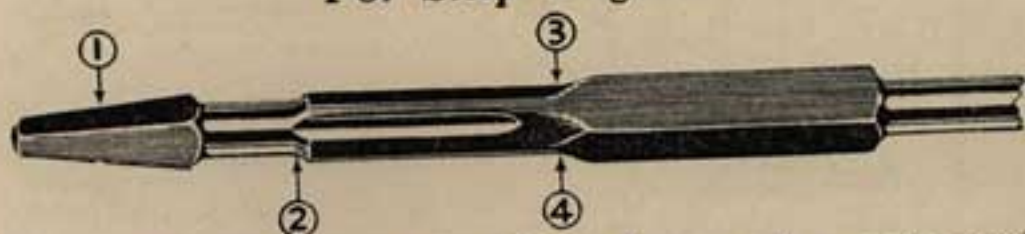
### *Surebor 18-inch Car Bit Stock No. 35-T*



This bit is recommended for rapid boring on rough woods and for general use.

All Car Bits on this page are made in Irwin and Bluwin grades in sizes from 4-16 to 24-16 inclusive.

## Patented 4-Way Shank For Ship Augers



THE 4-Way Shank for Ship Augers is a patented feature, exclusive with Irwin. It gives users a "4 in 1" shank that permits the use of the bit in a bit brace, air or electric drill, auger handle or for welding on extension rod. All that you need to do the job is a hack-saw and in a few minutes time the bit is ready for use.

The cut above indicates the four points at which the 4-Way Shank can be converted into ready-made shanks.

- No. 1. *Ready For Use in a Bit Brace.* The new 4-Way Shank is ready for use in a bit brace. No alterations whatever are required.
- No. 2. *Cut Off Here For Use in Electric Drill.* For use in air or electric drill, cut off bit back of the round part and it is then ready for use.
- No. 3. *For Use in Auger Handles.* The bit can be used in an auger handle by cutting off back of the square part.
- No. 4. *For Extension Rod, Cut Off Here and Weld.* If extra length is required, cut off back of square part and weld on extension rod.

## Ship Augers



*With Screw*



*Without Screw*

IRWIN gives you a complete line of Ship Augers all with the patented 4-Way Shank. Single Twist and Solid Center models are available in a wide range of sizes and twist lengths, with and without screw points.

Irwin Ship Augers are recommended for heavy construction and contractors work, bridge and ship building and various heavy repair jobs. For this reason only special bit steel is used. All Irwin Ship Augers are carefully tempered all over to insure efficient service and longer life.

If you are interested in knowing more about Irwin Ship Augers, see your dealer or jobber. He can supply you with the complete information on the entire Irwin Ship Auger line, all with the patented 4-Way Shank.



## The Irwin Trade Mark

THE man who buys a bit sees only its surface. He is not equipped to measure its clearances or to test its temper. He can not estimate the experience that enters into its construction. He must take these things on faith. He must look for a token of responsibility.

This is what gives meaning to the Irwin trade mark. It is stamped on the shank of every Irwin made bit. It is the mark of the originator and sole manufacturer of the genuine Irwin bit.

Genuine Irwin made bits have carried this identifying trade mark for over fifty years. It is the mark of quality and good tool efficiency in the United States and practically every foreign country.

May we suggest that when you are in the market for Auger Bits, insist upon IRWIN. Look for the trade mark shown above. You will find it stamped on the shank of every Irwin Bit.



WORLD WIDE  
POPULARITY

*for*

IRWIN

THE  
IRWIN AUGER BIT  
COMPANY

WILMINGTON, OHIO,  
U.S.A.

Copyright 1939 The Irwin Auger Bit Co.  
Printed in U.S.A.

Genuine Irwin Auger Bits have been manufactured and used since 1885. For over a half century these famous wood-boring tools have found their way into practically every country in the world. Today, more Irwin Auger Bits are sold and used than any other make. Irwin, too, manufactures a complete line of Screw Drivers in a wide range of prices. You will find that same long known Irwin reputation upheld in every Irwin Driver.

